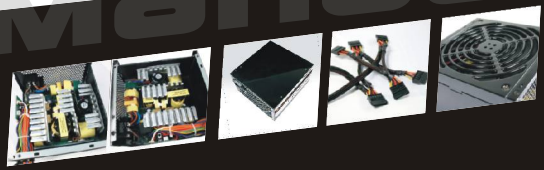
Toughpower 700W

14cm Fan

ATX 12V 2.2 & EPS 12V

- Tough Atomic Energy
Build for the Extreme -

Manual



Thermaltake
COOLall YOUR LIFE

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1. Introduction

We live up to the promise of Thermaltake logo in our unending quest for excellence.
Shall you have any suggestion or comments, please access our web site :
http://www.thermaltake.com
or e-mail to :
thermaltake@thermaltake.com
we appreciate your kindly feedback and you will receive the prompt response from our customer service team.

Thank you for choosing a quality Thermaltake **Toughpower 700W** PC Power Supply. We trust that you will find it providing you with many years of service.

Thermaltake Technologies delivers most solid line of power supplies built to specifically towards high-end systems for utmost PC system performance. The leader in thermal solutions defines Tough as being "able to withstand great strain and stress without tearing or breaking" same with their newest and latest line of ToughPower power supplies.

-Independent voltage circuit
Voltage won't fluctuate and influence each rails. The particular design for +3.3V, +5V, and +12V that offers unflappable current delivery under heavy load and makes voltage output more stable.

-Extremely good voltage regulation (3%)

Most power supplies has only one group regulation choke with three windings. However, the Toughpower takes on a different approach. The three (+3.3V, +5V, +12V) rails are all separate rails with individual windings. This feature allows the rails to have a tighter load regulation (3% or better) than the other power supplies. This feature also helps system voltage stay steady.

-Industrial grade components (capacitor, transformer, etc)

The key feature of the Toughpower is the usage of the highest quality components possible. Therefore, Toughpower allows the users to enjoy performance without worrying about the reliability.

-High reliability: MTBF > 120,000 hours

Toughpower features an extremely long MTBF (Mean Time Between Failures): 120,000 hours; which goes above and beyond all ATX specifications.

-Extend warranty: 3 years

With our high quality and solid circuit designs, we are confident to provide three years of warranty instead of the one-year industrial standard period.

Please take the time in familiarize yourself with the power supply, its connectors and the contents of this manual before proceeding with the installation of the power unit. You will need a Phillips crosshead screwdriver, perhaps your PC case manual and most certainly your motherboard manual.

Should you have any questions regarding the aforementioned steps, please contact Thermaltake directly. Failure to follow the proper procedures may cause severe bodily harm or PC component damage.
For Support or General Inquiries, please contact us at:

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2. Components Check

1. 700W power supply unit

2. One AC Input power cord

3. Mounting screws

4. User manual

3. Installation

3.1 Warnings and Cautions

3.1.1 Do not pull the AC power cord when the power supply is in use or else damage to components will result.

3.1.2 Do not store the Power Supply in a high humidity and high temperature environment.

3.1.3 When using an ATX type power supply under testing conditions where the power supply unit is not installed in a PC with its components, please follow the steps below:

1)Please take a paper clip and untwist it.
2)Make sure the power supply unit is in the "OFF" position.
3)Locate the 20 or 24 pin motherboard connector from the power supply unit.
4)Plug one side of the paper clip into the green wire hole.
5)Plug the other side of the paper clip into any of the black wire holes.
6)Turn on the PSU to see if the power supply fans turn on.

3.1.4 High voltages exist in the power supply. Do not open the power supply case unless you are an authorized service technician or electrician.

3.1.5 All warrantees and guarantees shall be voided should there be a failure to comply with any of the warnings and cautions covered in this manual.

3.2 Installation Steps

To prevent electrical shocks, please disconnect the power cord from your existing power supply unit. Toughpower 700W PSU has automatic Voltage Selector which will automatically change to 100V-240V.

Installation Steps

3.2.1 Disconnect the power cord from your old power supply.
3.2.2 Follow your computer case manual and disassemble the case.
3.2.3 Disconnect all the power connectors from the motherboard and from the peripheral devices such as case fans, hard drives, floppy drives. etc.
3.2.4 Remove the existing power supply from your computer case and replace it with your new Thermaltake **Toughpower 700W** PSU.
3.2.5 Connect the power connectors to the motherboard and peripheral devices (refer to the rest of this manual to match the various one-way key-locked connectors to the motherboard and accessories).
3.2.6 Connect the 6-pin PCI Express connector to PCI Express graphic card if you need.

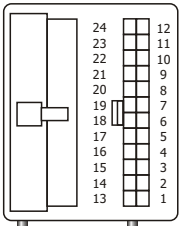
Note: Please read the user manual supplied with your graphic card for detail usage instructions.

3.2.7 Close the computer case.
3.2.8 Make sure your power supply switch is on "OFF" position, and connect the supplied power cord to your Thermaltake **Toughpower 700W** PSU.

4. Product Specification

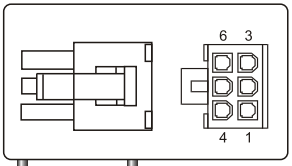
4.1 Output Specification

Main Power Connector



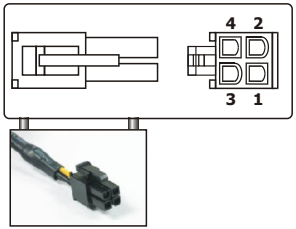
Voltage	Color			Color	Voltage
+3.3 V	Orange	1	13	Orange	+3.3 V
+3.3 V	Orange	2	14	Blue	-12 V
COM	Black	3	15	Black	COM
+5 V	Red	4	16	Green	PS_ON#
COM	Black	5	17	Black	COM
+5 V	Red	6	18	Black	COM
COM	Black	7	19	Black	COM
PWR_ON	Gray	8	20	N/C	N/C
+5 Vsb	Purple	9	21	Red	+5 V
+12 V_2	Yellow	10	22	Red	+5 V
+12 V_2	Yellow	11	23	Red	+5 V
+3.3 V	Orange	12	24	Black	COM

PCI Express Connector (6 pin)



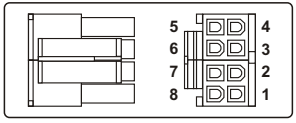
Color	Signal	Pin
Yellow	12V$_2$DC	1
Yellow	12V$_2$DC	2
Yellow	12V$_2$DC	3
Black	COM	4
Black	COM	5
Black	COM	6

+12V connector (4 pin)



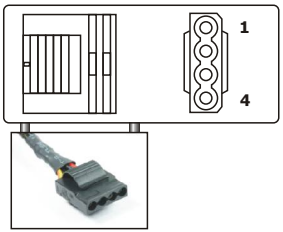
Color	Signal	Pin
Black	COM	1
Black	COM	2
Yellow	+12V DC	3
Yellow	+12V DC	4

+12V Connector (8 pin)



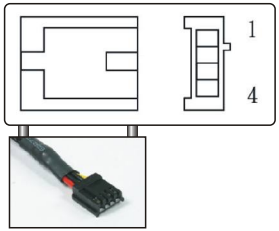
Color	Signal	Pin
Black	COM	1
Black	COM	2
Black	COM	3
Black	COM	4
Yellow	+12VDC	5
Yellow	+12VDC	6
Yellow	+12VDC	7
Yellow	+12VDC	8

Peripheral Connector (4 pin)



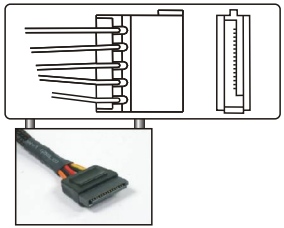
Color	Signal	Pin
Yellow	+12VDC	1
Black	COM	2
Black	COM	3
Red	+5VDC	4

Floppy Disk Connector (4 pin)



Color	Signal	Pin
Red	+5VDC	1
Black	COM	2
Black	COM	3
Yellow	+12VDC	4

Serial ATA Power Connector (5 pin)



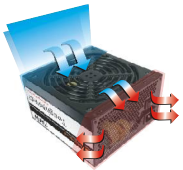
Color	Signal	Pin
Yellow	+12VDC	1
Black	COM	2
Red	+5VDC	3
Black	COM	4
Orange	+3.3 VDC	5

4.2 Touhgpower 700W PSU Specification

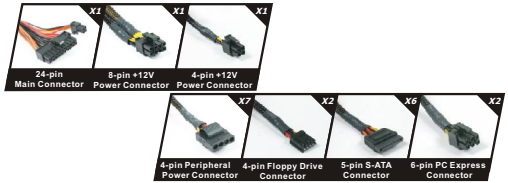
Features:

-Complies with ATX 12V2.2 & EPS 12V version.
-SLI, CrossFire , and Dual Core CPU ready.
-Next generation four +12V rails(12V1, 12V2, 12V3, 12V4) supports high-end graphic card and PC system (combined loading of 56A).
-Independent Voltage Circuit: offers unflappable current delivery under heavy load and makes voltage output more stable.
-Active Power Factor Correction (PF>0.99) and high efficiency (up to 85%).
-Extremely good voltage regulation (3%): provides steady voltage for system.
-Industrial grade components (capacitor, transformer, etc)
-High reliability: MTBF>120,000 hours.
-Mirror effect housing and reliable 14cm ball-bearing fan.
-Protections: Over Current, Over Voltage, and Short-Circuit protection.
-Safety / EMI Approvals: CE, CB, TUV, FCC, UL, CUL, and BSMI certified.

SPECIFICATION	
P/N	W0105
Maximum Power	700 Watts
Color	Black
Switches	ATX Logic on-off additional power rocker switch
PFC (Power Factor Correction)	Active PFC
Cooling System	14cm Fan SPEED: 1900 RPM(+10%~-10%) DIMENSION: 140 X 140 X 25 mm AIR FLOW: 82 CFM TEMP. AUTO CONTROL
Noise	16 dBA at 1300 RPM
P. G. Signal	100-500 ms
Over Voltage Protection Recycle AC to Reset	+5V 7.0Vmax +3.3V 4.5 Vmax +12V 15.6 Vmax
DIMENSIONS	
Unit Size	16cm(L)x15cm(W)x8.5cm(H)
Net Weight	2.4 kg
INPUT	
Input Voltage	90VAC - 264VAC
Input Frequency Range	47 - 63 Hz
Input Current	100VAC / 10A max. 200VAC / 5A max.
Hold-up Time	16 ms
Efficiency	up to 85%



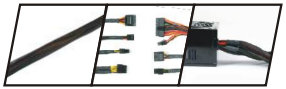
Total Output Connector



Technology Features

Quad +12V Rails and EPS Structure
Mirror Effect Housing
Six S-ATA Connectors
Silent 140mm Fan
Noise Preventive Silicon Pad -Effectively reduces vibration noise by as muchas 80%

Cable Application



Intelligent Cable Management:

- All cables withblack cable sleeving
- Optimum air-flow in thechassis

OUTPUT								
Voltage	+3.3V	+5V	+12V1	+12V2	+12V3	+12V4	−12V	+5VSB
Max. Load	30A	28A	18A	18A	18A	18A	0.8A	3.0A
Min. Load	0.5A	2.0A	1.0A	1.0A	1.0A	1.0A	0A	0A
Reak Load	-	-	-	-	-	-	-	3.5A
Load Reg.	+3% - 3%	+3% - 3%	+3% -3 %	+3% -3 %	+3% -3 %	+3% -3 %	+9% - 9%	+5% - 3%
Ripple & Noise	50 mV	50 mV	120 mV	120 mV	120 mV	120 mV	120 mV	50 mV

4.3 Other Specification

4.3.1 Inrush Current:
55A max. when AC input 115Vac at 25°C cold start.
110A max. when AC input 230Vac at 25°C cold start.

4.3.2 Power Efficiency:
80% (min.),up to 85%
115VAC - Full load 80%
230VAC - Full load 85%

4.3.3 Power Factor:
PF>0.9

4.3.4 Note:
The continuous total output power is 700W max.
The combined power of +5V and +3.3V is 180W max.
Peak currents may last up to 12 seconds with not more than one occurrence per minute.
Total combined +12V output load not exceed 56A.

4.3.5 Hold-Up Time:
16msec (minimum) at 80% of full load at 230Vac input.

4.3.6 Power Good Delay:
100-500 msec.

4.3.7 Power Fail Delay:
>1 msec.

4.3.8 Turn-On Delay Time:
2000 msec max.

4.3.9 Rise Time:
20ms max at full load.

4.4 Protection

When OCP, OVP or short protection is triggered, the main outputs will be latched off. The main outputs can be reset by cycling the DC remote on/off or AC power. +5Vsb output is auto recovery when fault condition removed.

4.4.1 Over Current Protection
Not over 240VA for every output voltage.

4.4.2 Over Voltage Protection
+3.3V output 4.5 Vmax
+5.0V output 7.0Vmax
+12.0V output 15.6 Vmax

4.4.3 Short Protection
All output to GND.

4.5 Environment:

4.5.1 Operating Temp. 10°C to +40°C (+50°C for 750W series)
4.5.2 Storage Temp. -20°C to +70°C
4.5.3 Operating Humidity 20% to 90%, non-condensing
4.5.4 Storage Humidity 5% to 95%, non-condensing
4.5.5 Operating Altitude 0 to 10,000 feet
4.5.6 Storage Altitude 0 to 50,000 feet

4.6 Hi-Pot: (Input/Output isolation)

4.6.1 Primary to Secondary
4242Vdc for 1 minute
4.6.2 Insulation Resistance
Primary to earth ground 500Vdc, 50M ohms Min.

4.7 CE Requirements

4.7.1 Conducted EMI
1. Meet FCC: Class B
2. Meet CISPR 22: Class B
3. Meet BSMI: Class B
4.7.2 Safety Standards
1. Meet CUL (UL 60950)
2. Meet TUV EN60950
3. Meet CB (IEC 950)
4. Meet CE
5. Meet CCC
4.7.3 Harmonic
Meet IEC1000-3-2, Class D

4.7.4 MTBF at 25°C(demonstrated)
Over 120Khrs

5. Trouble Shooting

Condition 1:

No DC output. The fan or fans are motionlessCheck:

1-1 Is the AC inlet plug firmly plugged into the PSU inlet socket?

1-2 Is the wall socket, extension power cord, power strip or surge protector in use, fully functional and wall power switch turned 'ON'?

1-3 Is the Main Board socket (24pin) plug fully and firmly inserted?

Condition 2:

The fan or fans began rotating and then stopped. The system hangs without proceeding any further.

Check:

2-1 Are the peripheral connectors firmly plugged into accessory devices, such as the main hard drive, CD ROM , etc?

2-2 If a plug has been inadvertently connected in an off-set or reversed position, unplug the AC power source, reconnect the offending connectors and then wait for 30 seconds before replug in the AC power source and try again.

Note:

If the power supply still cannot or is still unable to power up after following the above instruction, please send the unit back to your dealer or retailer for after sales service.

6. Cable Retail Package(Optional)

P/N:A2169 PSU Adaptor Cable
Specification

	(A)	(B)
Model	Adaptor Cable	Adaptor Cable
Dimension (mm)	193mm	198mm
Connector type	4pin - 8pin	20pin - 24pin
Cable sleeving color	Red	Black
Material	Plastic	Plastic
Weight	16 g	58 g
Voltage	12 V	3.3V,5V,+12v,-12V

(A)4pin-8pin

(B)20pin-24pin

Note

Note